What is claimed is:

1. A semiconductor cleaning apparatus comprising:

a cleaning bath supplied with a cleaning solution composed of ammonium hydroxide, deionized water and ozone;

a megasonic transducer for applying uniform megasonic power to the cleaning bath using water as a medium;

an ozone concentration analyzer for measuring the concentration of ozone in the cleaning solution;

pH and Eh meters for measuring the pH and Eh of the cleaning solution;

an ammonium hydroxide addition injection port for additionally supplying ammonium hydroxide into the cleaning bath if the concentration of ammonium hydroxide in the cleaning solution decreases to less than a predetermined amount;

a mixing tank for mixing ammonium hydroxide, deionized water and ozone in a predetermined volume ratio;

a first filter for removing ozone bubble components in the cleaning solution supplied from the mixing tank;

a supply pipe for supplying the cleaning solution into the cleaning bath through the first filter;

an ammonium hydroxide tank for supplying ammonium hydroxide into the mixing tank;

an ozone generator connected to the mixing tank and the cleaning bath, the ozone generator for supplying ozone into the mixing tank early on a cleaning process and supplying ozone into the cleaning bath after the supply of the cleaning solution into the cleaning bath is exhausted;

a circulation pump for circulating the cleaning solution in the cleaning bath through the;

a chiller for lowering the temperature of the cleaning solution circulated through the circulation pipe to a low temperature;

a second filter for removing particle components of the cleaning solution supplied through the circulation pipe; and

a wastewater discharging pipe for discharging the almost exhausted cleaning solution.

2. The semiconductor cleaning apparatus of claim 1, wherein the chiller stops driving if the cleaning process is performed at a room temperature and drives only if the cleaning process is performed at a low temperature.

3. A method of cleaning a wafer surface comprising:

forming a cleaning solution by adding ozone to aqueous ammonium hydroxide, which is composed of ammonium hydroxide and deionized water in the volume ratio of 0.001 – 0.01:5;

supplying the cleaning solution into a cleaning bath through a filter for removing ozone bubble;

applying megasonic power to the cleaning solution in the cleaning bath using a megasonic transducer; and

dipping a wafer surface in the cleaning solution which is at a room temperature to remove contaminants on the wafer surface.

4. A method of cleaning a wafer surface comprising:

forming a cleaning solution by adding ozone to aqueous ammonium hydroxide, which is composed of ammonium hydroxide and deionized water in the volume ratio of 0.001 – 0.01:5;

supplying the cleaning solution into a cleaning bath through a filter for removing ozone bubble;

circulating the cleaning solution in the cleaning bath through a circulation pipe and then supplying the cleaning solution into the cleaning bath again along the circulation pipe through a chiller;

applying megasonic power to the cleaning solution in the cleaning bath using a megasonic transducer; and

dipping a wafer surface in the cleaning solution which is at a low temperature of 10 - 15°C to remove contaminants on the wafer surface.